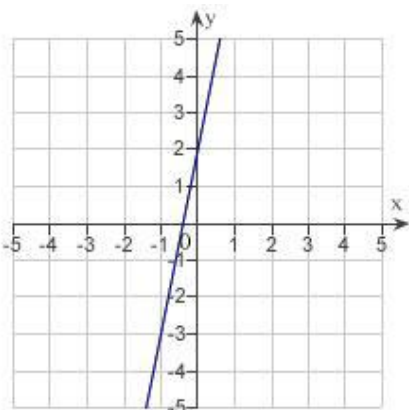


Lar_Calc ETF_5e ch01sec02

MULTIPLE CHOICE

1. Estimate the slope of the line from the graph.

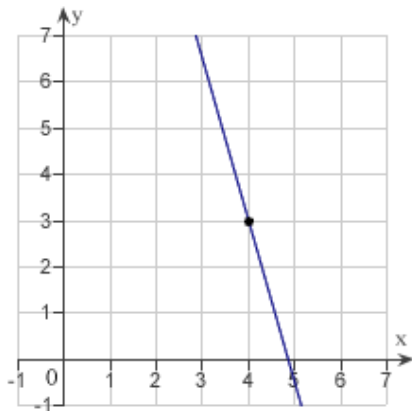


- a. $-\frac{1}{5}$
- b. 5
- c. 2
- d. $-\frac{1}{2}$
- e. $\frac{1}{5}$

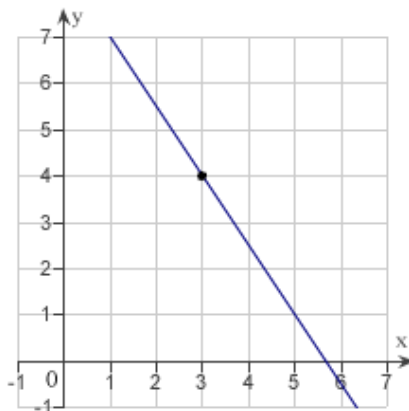
ANS: B PTS: 1 DIF: Easy REF: 1.2.2
 OBJ: Estimate the slope of a line from its graph MSC: Skill
 NOT: Section 1.2

2. Sketch the line passing through the point (3, 4) with the slope $-\frac{3}{2}$.

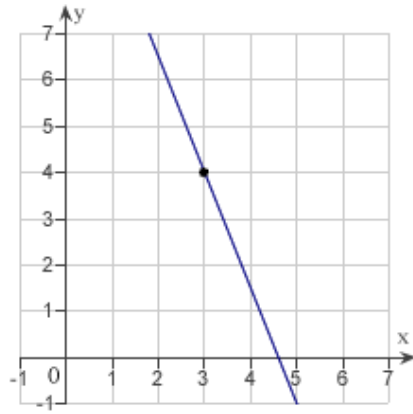
a.



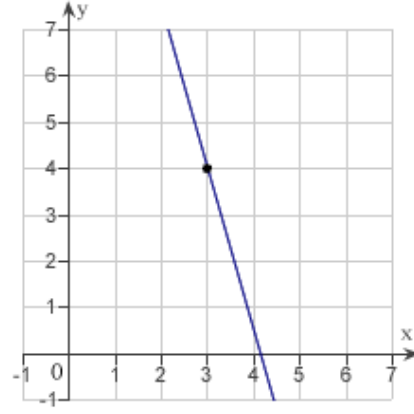
d.



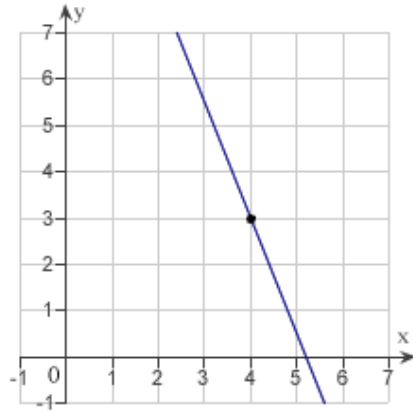
b.



e.



c.



ANS: D PTS: 1 DIF: Easy REF: 1.2.7c
OBJ: Sketch the line passing through a point with specified slope
MSC: Skill NOT: Section 1.2

3. Find the slope of the line passing through the pair of points.

$$(-3, -6), (0, -11)$$

- a. $\frac{3}{5}$
- b. $-\frac{5}{3}$
- c. $\frac{5}{3}$
- d. 0
- e. $-\frac{3}{5}$

ANS: B PTS: 1 DIF: Easy REF: 1.2.9
OBJ: Calculate the slope of a line passing through two points MSC: Skill
NOT: Section 1.2

4. Find the slope of the line passing through the points $\left(-\frac{1}{8}, \frac{8}{3}\right)$ and $\left(-\frac{3}{16}, \frac{1}{24}\right)$.

- a. 63
- b. -21
- c. 42
- d. 21
- e. -42

ANS: C PTS: 1 DIF: Medium REF: 1.2.13
OBJ: Calculate the slope of a line passing through two points MSC: Skill
NOT: Section 1.2

5. If a line has slope $m = -4$ and passes through the point $(4, 8)$, through which of the following points does the line also pass?

- a. $(1, 20)$
- b. $(1, 12)$
- c. $(1, 0)$
- d. $(8, -16)$
- e. $(8, -24)$

ANS: A PTS: 1 DIF: Medium REF: 1.2.17
OBJ: Identify a point on a line with specified properties MSC: Skill
NOT: Section 1.2

6. A moving conveyor is built to rise 5 meters for every 7 meters of horizontal change. Find the slope of the conveyor.

- a. 0
- b. $\frac{5}{7}$
- c. $\frac{7}{5}$
- d. $-\frac{7}{5}$
- e. $-\frac{5}{7}$

ANS: B PTS: 1 DIF: Easy REF: 1.2.19a
OBJ: Calculate slopes in applications MSC: Application NOT: Section 1.2

7. A moving conveyor is built to rise 1 meter for every 5 meters of horizontal change. Suppose the conveyor runs between two floors in a factory. Find the length of the conveyor if the vertical distance between floors is 10 meters. Round your answer to the nearest meter.

- a. 61 meters
- b. 39 meters
- c. 51 meters
- d. 50 meters
- e. 41 meters

ANS: C PTS: 1 DIF: Medium REF: 1.2.19b

OBJ: Calculate slopes in applications MSC: Application NOT: Section 1.2

8. Find the slope of the line $x + 3y = 15$.

- a. $\frac{1}{3}$
- b. $-\frac{1}{5}$
- c. $\frac{1}{5}$
- d. $-\frac{1}{15}$
- e. $-\frac{1}{3}$

ANS: E PTS: 1 DIF: Medium REF: 1.2.25
OBJ: Manipulate a linear equation to determine its slope MSC: Skill
NOT: Section 1.2

9. Find the y-intercept of the line $x + 4y = 8$.

- a. (0, 2)
- b. (0, 4)
- c. (0, 8)
- d. (4, 0)
- e. (2, 0)

ANS: A PTS: 1 DIF: Medium REF: 1.2.26
OBJ: Manipulate a linear equation to determine its y-intercept MSC: Skill
NOT: Section 1.2

10. Find an equation of the line that passes through the point (7, 2) and has the slope m that is undefined.

- a. $y = 7$
- b. $x = 7$
- c. $y = 2$
- d. $x = 2$
- e. $y = 7x$

ANS: B PTS: 1 DIF: Easy REF: 1.2.30
OBJ: Write an equation of a line given a point on the line and its slope
MSC: Skill NOT: Section 1.2

11. Find an equation of the line that passes through the point $(-11, -9)$ and has the slope $m = \frac{9}{2}$.

- a. $y = \frac{9}{2}x - \frac{81}{2}$
- b. $y = \frac{9}{2}x + \frac{81}{2}$
- c. $y = \frac{9}{2}x + 162$

d. $y = \frac{9}{2}x$

e. $y = -\frac{9}{2}x$

ANS: B PTS: 1 DIF: Easy REF: 1.2.34
OBJ: Write an equation of a line given a point on the line and its slope
MSC: Skill NOT: Section 1.2

12. Find an equation of the line that passes through the points $(18, -7)$ and $(-18, 23)$.

a. $y = -\frac{5}{6}x - 8$

b. $y = \frac{5}{6}x - 8$

c. $y = \frac{5}{6}x + 8$

d. $y = -\frac{5}{6}x + 8$

e. $y = -\frac{5}{6}x$

ANS: D PTS: 1 DIF: Easy REF: 1.2.40
OBJ: Write an equation of a line given two points on the line MSC: Skill
NOT: Section 1.2

13. Find an equation of the line that passes through the points $\left(-\frac{8}{11}, -\frac{70}{11}\right)$ and $\left(\frac{3}{2}, -\frac{21}{4}\right)$.

a. $y = \frac{1}{2}x$

b. $y = \frac{1}{2}x + 6$

c. $y = \frac{1}{2}x + 12$

d. $y = \frac{1}{2}x - 12$

e. $y = \frac{1}{2}x - 6$

ANS: E PTS: 1 DIF: Medium REF: 1.2.44
OBJ: Write an equation of a line given two points on the line MSC: Skill
NOT: Section 1.2

14. Use the result, “the line with intercepts $(a, 0)$ and $(0, b)$ has the equation $\frac{x}{a} + \frac{y}{b} = 1$, $a \neq 0$, $b \neq 0$ ”, to write an equation of the line with x -intercept: $(8, 0)$ and y -intercept: $(0, 7)$.

a. $8x - 7y - 8 = 0$

b. $7x - 8y + 7 = 0$

c. $8x + 7y + 8 = 0$

d. $7x + 8y + 56 = 0$

e. $7x + 8y - 56 = 0$

ANS: E

PTS: 1

DIF: Easy

REF: 1.2.47

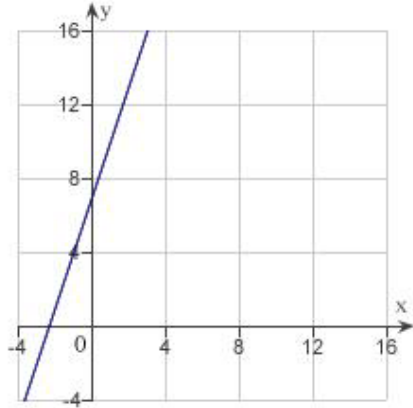
OBJ: Write an equation of a line given its x- and y-intercepts

MSC: Skill

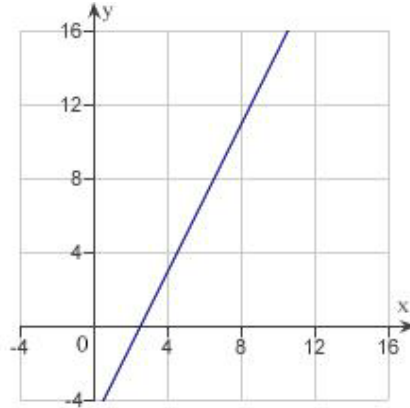
NOT: Section 1.2

15. Sketch a graph of the equation $y - 8 = 2(x + 4)$.

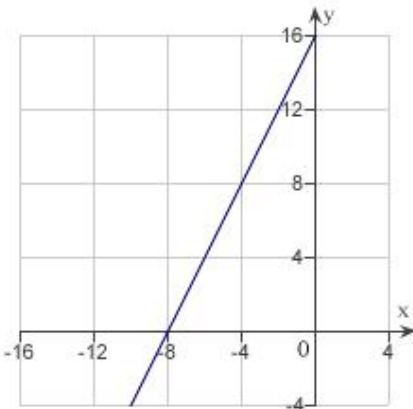
a.



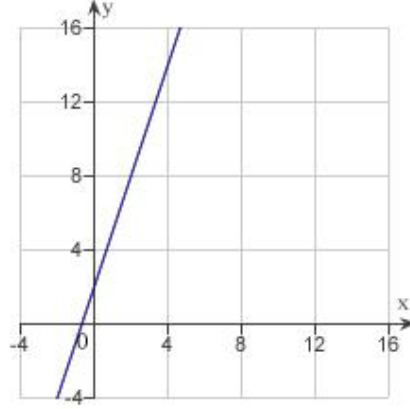
d.



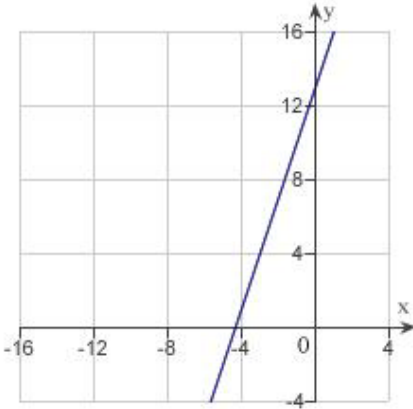
b.



e.



c.



ANS: B

PTS: 1

DIF: Medium

REF: 1.2.56

OBJ: Sketch the graph of a linear equation

MSC: Skill

NOT: Section 1.2

16. Write an equation of the line that passes through the given point and is perpendicular to the given line.

Point	Line
$(-1, -7)$	$x = 6$

- a. $y = 7$
- b. $y = -7$
- c. $y = -1$
- d. $x = -1$
- e. $x = 1$

ANS: C PTS: 1 DIF: Medium REF: 1.2.61b
OBJ: Write an equation of a line given a point on the line and a line to which it is parallel/perpendicular MSC: Skill NOT: Section 1.2

17. Write an equation of the line that passes through the given point and is parallel to the given line.

Point	Line
$(3, -4)$	$-2x - 5y = 9$

- a. $-2x - 5y = 14$
- b. $-2x - 5y = 23$
- c. $2x - 5y = 14$
- d. $-2x + 5y = -26$
- e. $2x - 5y = 23$

ANS: A PTS: 1 DIF: Medium REF: 1.2.63a
OBJ: Write an equation of a line given a point on the line and a line to which it is parallel/perpendicular MSC: Skill NOT: Section 1.2

18. Write an equation of the line that passes through the point $(-6, 4)$ and is perpendicular to the line $x + y = 5$.

- a. $x - y + 10 = 0$
- b. $x - y + 2 = 0$
- c. $x + y - 2 = 0$
- d. $x + y + 10 = 0$
- e. $x + y - 5 = 0$

ANS: A PTS: 1 DIF: Medium REF: 1.2.64b
OBJ: Write an equation of a line given a point on the line and a line to which it is perpendicular MSC: Skill NOT: Section 1.2

19. Write an equation of the line that passes through the point $\left(\frac{5}{4}, \frac{5}{8}\right)$ and is parallel to the line

$7x - 3y = 0$.

- a. $56x - 24y - 55 = 0$
- b. $56x + 12y - 55 = 0$

- c. $56x - 8y + 55 = 0$
- d. $56x + 6y + 55 = 0$
- e. $56x + 4y - 55 = 0$

ANS: A PTS: 1 DIF: Easy REF: 1.2.65a
 OBJ: Write an equation of a line given a point on the line and a line to which it is parallel
 MSC: Skill NOT: Section 1.2

20. Suppose that the dollar value of a product in 2008 is \$174 and the rate at which the value of the product is expected to increase per year during the next 5 years is \$7.50. Write a linear equation that gives the dollar value V of the product in terms of the year t . (Let $t = 0$ represent 2000.) Round the numerical values in your answer to one decimal place, where applicable.

- a. $V = 7.5t - 159$
- b. $V = -7.5t - 114$
- c. $V = -7.5t + 174$
- d. $V = 7.5t + 114$
- e. $V = 7.5t - 144$

ANS: D PTS: 1 DIF: Easy REF: 1.2.68
 OBJ: Write linear equations in applications MSC: Application
 NOT: Section 1.2

21. Find an equation of the line through the points of intersection of $y = x^2$ and $y = 6x - x^2$.

- a. $y = x - 6$
- b. $y = 6x$
- c. $y = -6x$
- d. $y = 3x$
- e. $y = x + 3$

ANS: D PTS: 1 DIF: Medium REF: 1.2.71
 OBJ: Write an equation of a line through the points of intersection of quadratic equations
 MSC: Skill NOT: Section 1.2

22. A company reimburses its sales representatives \$175 per day for lodging and meals plus 45¢ per mile driven. Write a linear equation giving the daily cost C to the company in terms of x , the number of miles driven. Round the numerical values in your answer to two decimal places, where applicable.

- a. $C = -1.75x + 45$
- b. $C = 0.45x + 175$
- c. $C = -0.45x - 175$
- d. $C = 0.45x - 175$
- e. $C = 1.75x - 45$

ANS: B PTS: 1 DIF: Easy REF: 1.2.80a
 OBJ: Write linear equations in applications MSC: Application
 NOT: Section 1.2

23. A company reimburses its sales representatives \$160 per day for lodging and meals plus 42¢ per mile driven. How much does it cost the company if a sales representative drives 135 miles on a given day? Round your answer to the nearest cent.

- a. 227.20

- b. 216.70
- c. 136.35
- d. 161.35
- e. 191.70

ANS: B PTS: 1 DIF: Easy REF: 1.2.80b
 OBJ: Evaluate linear equations in applications MSC: Application
 NOT: Section 1.2

24. A real estate office handles an apartment complex with 50 units. When the rent is \$800 per month, all 50 units are occupied. However, when the rent is \$845, the average number of occupied units drops to 47. Assume that the relationship between the monthly rent p and the demand x is linear. Write a linear equation giving the demand x in terms of the rent p .

- a. $x = \frac{1}{15} (1595 - p)$
- b. $x = \frac{1}{15} (1505 + p)$
- c. $x = \frac{1}{45} (1550 + p)$
- d. $x = \frac{1}{15} (1550 - p)$
- e. $x = \frac{1}{45} (1595 - p)$

ANS: D PTS: 1 DIF: Medium REF: 1.2.83a
 OBJ: Write linear equations in applications MSC: Application
 NOT: Section 1.2

25. A real estate office handles an apartment complex with 50 units. When the rent is \$600 per month, all 50 units are occupied. However, when the rent is \$645, the average number of occupied units drops to 47. Assume that the relationship between the monthly rent p and the demand x is linear. Predict the number of units occupied if the rent is raised to \$660.

- a. 43 units
- b. 54 units
- c. 57 units
- d. 49 units
- e. 46 units

ANS: E PTS: 1 DIF: Easy REF: 1.2.83c
 OBJ: Evaluate linear equations in applications MSC: Application
 NOT: Section 1.2

26. Find the distance between the point $(-4, 7)$ and line $x - y - 2 = 0$ using the formula,

$$\text{Distance} = \frac{|Ax_1 + By_1 + C|}{\sqrt{A^2 + B^2}}$$

for the distance between the point (x_1, y_1) and the line

$$Ax + By + C = 0.$$

- a. $\frac{11\sqrt{2}}{2}$

b. $\frac{4\sqrt{3}}{3}$

c. $\frac{13\sqrt{2}}{2}$

d. $\frac{9\sqrt{2}}{2}$

e. $\frac{6\sqrt{3}}{3}$

ANS: C PTS: 1 DIF: Medium REF: 1.2.89
OBJ: Calculate the distance between a point and a line MSC: Skill
NOT: Section 1.2